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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,136	06/03/2002	Lec Sprague	100746-9/Halocarbon 221	8154

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EXAMINER

PRICE, ELVIS O

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 10/01/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/031,136

Applicant(s)

SPRAGUE ET AL.

Examiner

Elvis O. Price

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,7-9,11 and 12 is/are allowed.
- 6) ☐ Claim(s) 1-3, 5,6, and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Claims 1-12 are pending in the application.

#### ***Information Disclosure Statement***

The information disclosure statement filed 01/14/02 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been placed in the application file and the information referred to therein has been considered as to the merits.

#### ***Priority***

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

A statement reading, "This application is a 371 of PCT/US00/09863, filed 07/21/200, which claims benefit of 60/144,739, filed 07/21/1999", should be entered following the title of the invention or as the first sentence of the specification.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 rejected under 35 U.S.C. 102(b) as being anticipated by Voight et al. {US Pat. 4,898,645}.

Voight et al. disclose a process for preparing an aliphatic fluorocarbon product(s) comprising pyrolyzing an aliphatic fluorocarbon compound (chlorodifluoromethane) to

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form a reactive aliphatic fluorocarbon intermediate which reacts with another reactive intermediate to form the desired aliphatic fluorocarbon products (see Example 1).

Claims 5 and 10 rejected under 35 U.S.C. 102(b) as being anticipated by Difelice et al. {Combust. Sci. and Tech., 1996, 116-117 (1-6), pp. 5-30; abstract only}.

Difelice et al. disclose a process for preparing 1,1,1,2,3,4,4,4-octafluoro-2-butene (perfluoro-2-butene) comprising pyrolyzing 1-chloro-1,2,2,2-tetrafluoroethane (2-chloro-1,1,1,2-tetrafluoroethane) (see abstract). Difelice et al., also disclose a process for preparing 1,1-dichloro-1,2,2,2-tetrafluoroethane ( $\text{CFCl}_2\text{CF}_3$ ) comprising pyrolyzing 1-chloro-1,2,2,2-tetrafluoroethane (2-chloro-1,1,1,2-tetrafluoroethane) (see abstract).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salmon et al. {Chem. Phys. Processes Combust., 1996, pp. 507-510}.

Applicants claim a process for preparing trifluoroethylene, in greater than 50% yield comprising pyrolyzing 1-chloro-2,2,2-trifluoroethane at a temperature below about 725 C. Applicants also claim a process for preparing 1-chloro-2,2-difluoroethylene, comprising pyrolyzing 1-chloro-2,2,2-trifluoroethane at about 700 C and at less than 10% conversion.

Salmon et al. teach a process for preparing trifluoroethylene comprising pyrolyzing 1-chloro-2,2,2-trifluoroethane (2-chloro-1,1,1-trifluoroethane) at a temperature ranging from 700 C to 875 C (973K to 1148K) (see abstract). Additionally, salmon et al. teach a process for preparing 1-chloro-2,2-difluoroethylene (2-chloro-1,1-difluoroethylene) comprising pyrolyzing 1-chloro-2,2,2-trifluoroethane (2-chloro-1,1,1-trifluoroethane) at the lower temperature of the temperature range 700 C to 875 C (973K to 1148K) (see abstract). Salmon et al. teach that the conversion of 1-chloro-2,2,2-trifluoroethane (2-chloro-1,1,1-trifluoroethane) ranged from 10% at 700 C (973K). The difference between the presently claimed invention and what is taught by the Salmon et al. reference is silent with regard to the specific yield of the trifluoroethylene product formed. However, since Salmon et al. teach that trifluoroethylene is the major product observed at the lower temperatures, it would not be unreasonable for one having ordinary skill in the art to conclude that the yield of the trifluoroethylene is at least 50%.

It would have been prima facie obvious to one having ordinary skill in the art, in view of the Salmon et al. reference, to prepare trifluoroethylene or 1-chloro-2,2-difluoroethylene (2-chloro-1,1-difluoroethylene) by pyrolysis of 1-chloro-2,2,2-trifluoroethane (2-chloro-1,1,1-trifluoroethane) at about 700 C.

One having ordinary skill in the art would have been motivated, in view of the teachings in the Salmon et al. reference, to vary the temperature, pressure, concentration of the 1-chloro-2,2,2-trifluoroethane (2-chloro-1,1,1-trifluoroethane), etc., before pyrolysis, in an effort to affect the optimum yield of the trifluoroethane product.

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The instantly claimed process would therefore have been obvious to one of ordinary skill in the art.

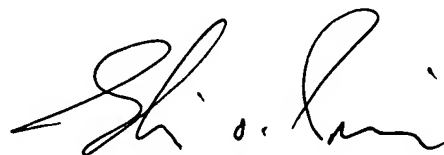
***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter: Claims 4 and 7-9, 11 and 12 are unobvious over the prior art of record because the prior art of record does not teach or suggest preparing the recited fluorinated compounds by pyrolyzing the recited halogenated starting reactants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvis O. Price whose telephone number is 703 605-1204. The examiner can normally be reached on 8:30 am to 5:00 pm; Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 703 308-4532. The fax phone numbers for the organization where this application or proceeding is assigned is 703 308-4556 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1235.

A handwritten signature in black ink, appearing to read 'Elvis O. Price', with a stylized, cursive script.

Elvis O. Price

September 29, 2003